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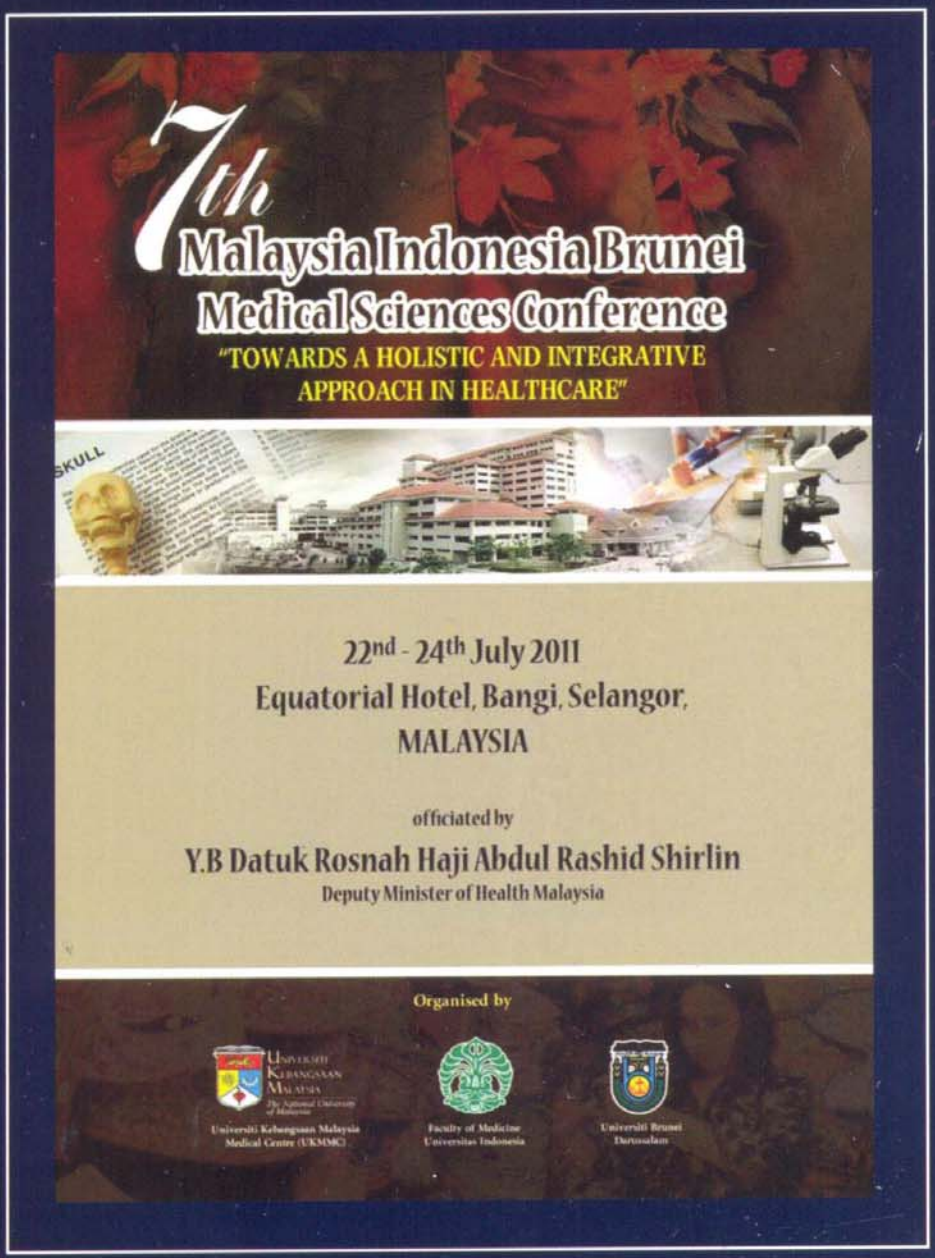

EFFECT OF EMERGENCY HERBAL BISCUITS ON THE IMMUNE-RESPONSE OF STARVING Balb-C MICE

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In emergency situation due to natural disaster, victims are living in starvation and have to stay in facilities which are far from healthy. This condition makes the victims more prone to infectious diseases, probably in part due to the decrease in their immunity response.

Nutrition densed foods are needed to accelerate improvement in their nutritional status, especially in prolonged starvation. The availability of supplement that can overcome the defect in body resistance toward infection will be very useful. BPPT is developing nutrition-densed food product containing herbal with in-vitro immuno-stimulant effects that is aimed to support the condition of natural disaster victims during the first few weeks in the emergency settings.

This study is an animal experimental study, comparing the new product named EHB (emergency herbal biscuits) with control that is regular mice food and a positive control, phyllanthus niruri extract, known as an immunostimulant. Animal used were male mice Balb-C, an animal model for immune-response testing, each group consists of six 8 weeks old mice with body weight around 25 gr, in starvation. The dosage of EHB was 1 gr/mouse/day, calculated in accordance with the amount used in human. Phyllantus nirurias control was given 10 mg/mouse/day, human dose is 4gr/day.

The study showed that EHB increased the body weight better than the other groups until the 8^{th} week. Leucocyte count showed an increase in all groups, within 2 weeks it reached the normal level. At the 8^{th} week segmented neutrofil was highest in the EHB group, even compared to Phyllanthus group. The lymphocytes count after 8 weeks is similar with normal. The IgG non specific level is maintained at high level in both EHB and Phyllanthus groups, while the starving control group has a low IgG level after starving for 8 weeks.

EHB and Phyllanthus niruri increased the specific immune response measured as IgG against Tetanus Toxoid compared to control group after a long time of starvation. There was no difference in body weight and leucocytes or lymphocytes count between the EHB and control in the non-starving group.

Further studies in human is needed, since the product was proven to be non-toxic it can be used and studied in emergency due to disaster in operational studies.